

## Migration of Palaearctic birds inland in Ethiopia

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A large passage of Palaearctic migrants was found in an area of southeastern Ethiopia in three springs. Observations indicated that many of the birds involved were apparently moving towards an exodus from Africa somewhere further to the north-east—a supposition supported by subsequent observations in Somalia (Ash & Miskell 1983, 1988) and Oman (Ash & Nikolaus in press).

### Areas visited in April

Three spring-time visits were made to southern Bale Province and to the Borana district of Sidamo Province in the month of April during 1971–1974. This area lies to the southeast of Negele (5°20'N, 39°35'E; 1470 m) extending to the borders with Somalia and Kenya. Over a very large area the habitat was rather similar, a thick *Acacia* and/or *Commiphora* bush interspersed with other deciduous trees, mainly 3–6 m high, in undulating and sometimes rather hilly country. Within this area there were areas of open grassland, such as that just to the east of Negele, where there were only scattered acacias. The following visits were made:

- 1971: 17–24 April. From Negele for 76 km to the ESE, towards Filtu, and for 54 km to the south towards Wachile.
- 1973: 16–20 April. From Dolo (4°11'N, 42°05'E) for 390 km WNW, to Negele.
- 1974: 13–17 April. From Negele for 74 km to the ESE, towards Filtu, where a base in the bush was established for three days.

In April the rains throughout this area make travel difficult at times, produce a flush of green vegetation, and result in many large rain pools attractive to birds. To compare the situation elsewhere, a transect of 354 km through a similar area, slightly further east, was taken from Ginir (7°09'N, 40°42'E) to Dolo, 9–16 April 1973. Much of this area must be extremely suitable to both longer term visiting migrants and others passing through, and offer a rich source of food. The Palaearctic migrants noted on these four visits are listed in Table 1.

### Species and numbers recorded

Altogether c. 50 species of Palaearctic migrants—a few of these include Afrotropical races—were recorded, of which eight species on the Ginir-Dolo transect in 1973 were not recorded on the other three journeys.

In each year the Red-backed Shrike<sup>1</sup> was the most numerous and conspicuous species, in 1971 over 1000 were already accounted for by the third day of observation, on each of which many were present. There were fewer, but still very many, in 1973 and 1974. The next most plentiful species were Lesser Grey Shrike, Whinchat, Willow Warbler, and Spotted Flycatcher, but not always in this order; Spotted Flycatchers, for

<sup>1</sup>Scientific names are not given in the text for those species listed in Table 1

Table 1. Numbers of Palaearctic migrants seen in southeast Ethiopia in spring

| Species  | Areas and dates covered    |                                 |                            |
|--|----------------------------|---------------------------------|----------------------------|
|  | A<br>Negele<br>17–24.04.71 | B<br>Dolo-Negele<br>16–20.04.73 | C<br>Negele<br>13–17.04.74 |
| Lesser Kestrel <i>Falco naumanni</i>                   | 23                         | –                               | –                          |
| Hobby <i>F. subbuteo</i>                               | 7                          | 5                               | 8                          |
| Kestrel <i>F. tinnunculus</i>                          | 5                          | –                               | 4                          |
| Ringed Plover <i>Charadrius hiaticula</i>              | 1                          | >3                              | >2                         |
| Common Sandpiper <i>Actitis hypoleucos</i>             | 4                          | 29                              | –                          |
| Wood Sandpiper <i>Tringa glareola</i>                  | 38                         | 27                              | –                          |
| Curlew Sandpiper <i>Calidris ferruginea</i>            | –                          | 40                              | –                          |
| Little Stint <i>C. minuta</i>                          | –                          | 3                               | –                          |
| Great Spotted Cuckoo <i>Clamator glandarius</i>        | 2                          | –                               | –                          |
| Eurasian Cuckoo <i>Cuculus canorus</i>                 | 29                         | 1                               | –                          |
| Hoopoe <i>Upupa epops</i>                              | >1                         | >6                              | 2                          |
| Barn Swallow <i>Hirundo rustica</i>                    | 30                         | x                               | >60                        |
| Golden Oriole <i>Oriolus oriolus</i>                   | 5                          | 11                              | –                          |
| Nightingale <i>Luscinia megarhynchos</i>               | 6                          | 3                               | 1                          |
| Rock Thrush <i>Monticola saxatilis</i>                 | 2                          | 28                              | 2                          |
| Isabelline Wheatear <i>Oenanthe isabellina</i>         | 1                          | 4                               | 1                          |
| Northern Wheatear <i>O. oenanthe</i>                   | 3                          | 16                              | –                          |
| Whinchat <i>Saxicola rubetra</i>                       | 250–300                    | >150                            | 67                         |
| Great Reed Warbler<br><i>Acrocephalus arundinaceus</i> | 6                          | 5                               | 1                          |
| Sedge Warbler <i>A. schoenobaenus</i>                  | 1                          | 23                              | –                          |
| Willow Warbler <i>Phylloscopus trochilus</i>           | 300                        | 100                             | 38                         |
| Garden Warbler <i>Sylvia borin</i>                     | 1                          | 1                               | 8                          |
| Whitethroat <i>S. communis</i>                         | 2                          | 30                              | 9                          |
| Spotted Flycatcher <i>Muscicapa striata</i>            | 21                         | 300                             | 60                         |
| Tree Pipit <i>Anthus trivialis</i>                     | 4                          | 9                               | >46                        |
| Yellow Wagtail <i>Motacilla flava</i>                  | 57                         | 50                              | 106                        |
| Red-backed Shrike <i>Lanius collurio</i>               | >1000                      | >500                            | >102                       |
| Red-tailed Shrike <i>L. isabellinus</i>                | 1                          | 13                              | –                          |
| Lesser Grey Shrike <i>L. minor</i>                     | 250–300                    | >300                            | 66                         |

Notes: Also the following occurred singly: Grey Heron *Ardea cinerea* A; Night Heron *Nycticorax nycticorax* B; Pallid Harrier *Circus macrourus* A; Montagu's Harrier *C. pygargus* A, B, C; Greenshank *Tringa nebularia* B, C; Marsh Sandpiper *T. stagnatilis* B; Black-winged Stilt *Himantopus himantopus* B; Reed Warbler *Acrocephalus scirpaceus* B; Olivaceous Warbler *Hippolais pallida* B; Red-throated Pipit *Anthus cervinus* B.

See text for eight further species  
x = present, but not counted

example, were in greatest numbers in 1973, fewer in 1974, and fewer still in 1971. These annual fluctuations may have depended on the timing of peak passage in each species, diversions along the migratory route, or the extent of overflying. Many spring migrants follow relatively narrow routes, in the same way that some autumn migrants do (Pearson *et al.* 1988), from which, conceivably, they may be diverted at some stage by factors such as active meteorological conditions, or the effects of rainfall on vegetation stages. Experience with spring migration elsewhere in eastern Africa and Arabia indicated that the period covered in southeast Ethiopia, 9–24 April, is at the earlier stages of migration for many of the species involved. However, Dr D. J. Pearson (pers. comm.) states that in nearby Kenya peak spring migration is during c. 1–25 April.

The main species on the Negele–Dolo journeys were only in smaller numbers on the Ginir–Dolo transect on 9–16 April 1973, but this may have been partly due to the slightly earlier dates. For example, there were only 1 Whinchat, 9 Willow Warblers, 4 Red-backed Shrikes, 5 Lesser Grey Shrikes, and no Spotted Flycatchers; but the following species were additional: 18 Eurasian Swifts *Apus apus*, 5 Alpine Swifts *A. melba*, >5 Red-rumped Swallows *Hirundo daurica*, 4 Rufous Bush Chats *Cercotrichas galactotes*, 6 Iranias *Irania gutturalis*, 1 Sprosser *Luscinia luscinia*, 6 Pied Wheatears *Oenanthe pleschanka*, and 1 Redstart *Phoenicurus phoenicurus*. By contrast with the foregoing, on a visit to the same area during a journey from Negele to Dolo and back on 25 February to 2 March 1989 only a small population of overwintering Palaearctic migrants was present—a total of 62 birds of 28 species. Of these, the following 13 species were not seen in April 1971–1974 on the Negele–Dolo route: Black Stork *Ciconia nigra*, Northern Pintail *Anas acuta*, Common Buzzard *Buteo buteo*, Eurasian Marsh Harrier *Circus aeruginosus*, Little Ringed Plover *Charadrius dubius*, Green Sandpiper *Tringa ochropus*, Eurasian Bee-eater *Merops apiaster*, Pied Wheatear, Redstart, Upcher's Warbler *Hippolais languida*, White Wagtail *Motacilla alba*, Grey Wagtail *M. cinerea*, and Great Grey Shrike *Lanius excubitor*. The bee-eaters were probably on early return migration.

### Weights

Taking the weights of birds as a measure of their migratory fat content, the small numbers handled in 1971–1974 are compared with birds from elsewhere in Ethiopia and adjoining Somalia in an attempt to obtain clues to what the migrants were doing in the Negele area in April (see Table 2).

Were these, for example, lean birds which perhaps needed to fatten in this area, or were they fat birds ready for long onward flights? Great Reed Warblers were on average c. 16 per cent heavier than birds caught elsewhere during both January–March and April–June. By contrast, Sedge Warblers were close to non-migratory weights, and some 32 per cent below average April–May weights elsewhere. Willow Warblers, Garden Warblers and Red-backed Shrikes were heavier by 10–16 per cent than birds in January–March, and close to April–May weights elsewhere. Other species were intermediate between January–March and April–May weights elsewhere, with Whitethroats 13 per cent higher than in January–March but still 7 per cent below average April–May weights, and Yellow Wagtails 3 per cent above winter weights, but still 6 per cent below average April–May weights.

Spotted Flycatchers were presumably carrying some fat, as they were equal to April–May weights elsewhere. They were much heavier (34 per cent) than the only bird I

Table 2. *Weights (g) of Palaearctic migrants in spring in southeast Ethiopia compared with those obtained elsewhere in the country*

| Species            | SE Ethiopia |           |          | Elsewhere |           |          | months |
|--------------------|-------------|-----------|----------|-----------|-----------|----------|--------|
|                    | mean        | range     | <i>n</i> | mean      | range     | <i>n</i> |        |
| Great Reed Warbler |             |           |          | 30.8      | 23.5–39.9 | 22       | i–iii  |
|                    | 36.0        | 28.4–47.1 | 7        | 30.9      | 24.2–45.2 | 42       | iv–v   |
| Sedge Warbler      |             |           |          | 10.5      | 7.5–13.9  | 25       | i–iii  |
|                    | 10.8        | 10.0–11.5 | 2        | 13.4      | 10.0–16.8 | 13       | iv–v   |
| Reed Warbler       |             |           |          | 11.0      | 8.1–17.6  | 202      | i–iii  |
|                    | 10.0        |           | 1        | 11.9      | 8.9–20.0  | 208      | iv–v   |
| Olivaceous Warbler |             |           |          | 9.9       | 8.0–12.3  | 70       | i–iii  |
|                    | 8.3         |           | 1        | 9.4       | 8.3–10.3  | 5        | iv–v   |
| Willow Warbler     |             |           |          | 8.9       | 6.4–15.1  | 127      | i–iii  |
|                    | 9.8         | 7.2–14.2  | 27       | 9.9       | 6.3–14.3  | 98       | iv–v   |
| Garden Warbler     |             |           |          | 17.2      | 15.9–18.9 | 7        | i–iii  |
|                    | 19.9        | 19.3–20.9 | 3        | 20.3      | 14.5–34.3 | 149      | iv–v   |
| Whitethroat        |             |           |          | 13.3      | 10.9–15.8 | 81       | i–iii  |
|                    | 15.0        | 11.3–19.1 | 9        | 16.2      | 13.0–22.1 | 20       | iv–v   |
| Spotted Flycatcher |             |           |          | 12.2      |           | 1        | i–iii  |
|                    | 16.3        | 15.5–17.5 | 4        | 16.3      | 12.2–20.8 | 10       | iv–v   |
| Tree Pipit         |             |           |          | 21.6      | 17.7–25.3 | 107      | i–iii  |
|                    | 24.2        | 21.2–33.1 | 7        | 19.6      |           | 1        | iv–v   |
| Yellow Wagtail     |             |           |          | 15.8      | 12.0–26.9 | 113      | i–iii  |
|                    | 16.3        | 15.1–17.9 | 8        | 17.4      | 13.5–21.6 | 29       | iv–v   |
| Red-backed Shrike  |             |           |          | 26.0      | 25.2–27.2 | 3        | iii    |
|                    | 29.1        | 22.7–33.4 | 7        | 29.3      | 22.7–33.4 | 9        | iv–v   |

weighed during January–April, but not much more than passage birds in spring in Oman (15.6 g, range 12.7–20.6 g, *n* = 170) (Ash & Nikolaus in press). Tree Pipits were 12 per cent heavier than January–March birds, but the only April–May bird was light.

Generally April weights were not particularly high, although eight out of 11 species had mean weights above those of January–March. There was no indication that a large proportion of heavy birds was present, suggesting it was necessary either to stay longer in the area to fatten, or to move on quickly to a fattening area elsewhere. Birds may, of course, have recently used up lipid reserves on a long migration from further south. These periods of observation in mid-April were probably before the peak of spring migration, so that further observations at later dates are required before the situation can be fully understood.



### Diurnal passage

An unusual event occurred on 21 April 1971 when many birds generally regarded as night migrants were apparently migrating during the day. At 54 km south of Negele many calling Red-backed Shrikes and Willow Warblers were heard at dawn (c. 06:00). At least some of these birds were flying overhead, but the thick woodland cover prevented me from seeing what was happening. From the top of a small hillock 40 min later there was an open view over the woodland through an arc between south and west. Throughout this arc groups of Red-backed Shrikes were sitting on the tree-tops, usually three or four together, and once as many as 14. Among them were Willow Warblers. Birds from these groups constantly took off to join other birds flying past, the Willow Warblers flying at tree-top level and the shrikes rather higher. At the same time smaller numbers of Barn Swallows, Yellow Wagtails and Eurasian Cuckoos, and two and three Golden Orioles flew past, all at about the same height. Through binoculars migrants could be seen flying above the trees for as far as could be seen. The cuckoos being larger could be spotted, sometimes in loose parties of four or five, probably for up to 2–3 km away, flying straight towards me at tree-top level. All the birds seen were flying steadily ENE (i.e. from the WSW). The movement was still in progress when observation ceased at 08:30, by which time all the species involved were fewer.

Possibly these birds were continuing a migration which had begun the previous night, although certainly many were taking off from trees, which suggests perhaps all were at the start of a diurnal passage. Alternatively, they may have come down during the night and have been continuing after a rest. Whichever was the case, it seems remarkable that a movement involving many hundreds of migrants should be seen in the middle of a vast area of uniform habitat. Unfortunately there were no estimates of bird numbers on the previous evening. There was no obvious reason why they should be concentrated on the relatively narrow band possibly 1–2 km wide over which they could be seen, so that if this were merely part of a broad-front migration the total involved must have been very large. Perhaps the most interesting aspect of the movement was the direction of flight; most unexpected for migrants heading for eventual breeding areas to the north. Possibly they form a link with the movement through northern Somalia (Ash & Miskell 1988) and Oman (Ash & Nikolaus in press).

### Discussion

Diurnal group flight of Eurasian Cuckoos may not be unusual, but only two other cases have been traced. Interestingly one was 700 km to the southeast in Somalia, where ten flew NE at dawn on 6 May, an inversion mist being present at the time (Douthwaite & Miskell 1991). Moreau (1972) also refers to excited groups of cuckoos flying about together during spring migration.

It is unfortunate that Benson (1945, 1946) who spent ten months in an intensive study of birds in southern Ethiopia and visited the Negele area in late March, missed the main spring migration months of April and May. However, the Negele area was, for him, obviously of exceptional interest as far as migrants were concerned in southern Ethiopia, even at this early date when relatively few would be moving. His comments on three species support this view: he saw Barn Swallows rarely except for numbers near Negele on 23 March (Benson 1945), he recorded as exceptional 12 Whinchats at

Negele and for 48 km to the north on 21–22 March (Benson 1946), and adult male Red-backed Shrikes on five occasions in the last week of March at Negele and at only two other sites (Benson 1946). This is further evidence that the Negele area holds unusually large numbers of spring migrants. In my personal experience throughout Ethiopia and Somalia I have found no other area comparable for spring passerine migration.

It is difficult to understand why there should be a concentration of migrants in a vast area of relatively uniform habitat. It certainly suggests the existence of a regular flyway, similar to that used by some migrants through northeastern Africa in autumn (Pearson *et al.* 1988) and from Africa to Arabia in spring (Ash & Nikolaus in press).

The diurnal movement of what are usually night migrants is also difficult to explain. It may have involved the reorientation of passage birds which had strayed off-course during the previous night, although it is difficult to understand why there should have been any immediate need to correct such an error. Or possibly they were flying towards the area of concentration east of Negele, although it would seem that continuation of movement in an ENE direction might result in more easting than would be required to return towards northern breeding areas. However, a similar ENE flight direction has been noted in Somalia and Oman. On 9 May hundreds of Willow Warblers left ENE into the wind at 30 min before sunset at Takoshe (11°21'N, 43°24'E) in northwestern Somalia close to the Djibouti border (Ash & Miskell 1988), and in spring 1992 most migrants departing from oases in the Empty Quarter of Oman departed to the ENE (Ash & Nikolaus in press). Taken together these movements point towards the existence of an important flyway for spring migrants through eastern Ethiopia and northern Somalia to Oman (presumably via Yemen).

If the main flight direction of migrants passing through this region is more or less northeasterly, one might speculate that these ENE flights involve birds which had overwintered in the western sector of their furthest non-breeding area. These would need to make more easting at some stage of their flight in order to join up with those overwintering further east in southern Africa. The channelling of migrants into relatively proscribed bands through northeast Africa and Arabia is likely to be a strategy adopted by spring migrants as well as by the autumn migrants discussed by Pearson *et al.* (1988).

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